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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,765	12/29/2000	Robert A. Wiedeman	YR0-61	5071

71920 7590 09/22/2010

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ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
09/22/2010	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT A. WIEDEMAN, MICHAEL J. SITES,
and PAUL A. MONTE

Appeal 2009-004869
Application 09/751,765
Technology Center 2600

Before MAHSHID D. SAADAT, KARL D. EASTHOM,
and CARL W. WHITEHEAD, JR., *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

Appellants appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1 through 25. The remaining claim, claim 26, has been allowed. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

STATEMENT OF THE CASE

Appellants' invention relates to a method of operating a satellite communication system, such as a satellite telephony system. The satellite communication system comprises at least one gateway (GW) for interconnecting the satellite communications system to other communication services, such as the public switched telephone network, and for communicating with a constellation of satellites and through the constellation of satellites to at least one user terminal (UT), such as a satellite telephone. Each UT has a determined location and an estimated error (E) associated with the determined location. According to Appellants' disclosure, a zone of interference or exclusion zone is defined by a confidence polygon around a protected site. The confidence polygon has an associated confidence limit (CL). Service is provided to the UT depending on the determined location of the UT in conjunction with a comparison of E to CL. Claim 1 is illustrative of the claims on appeal:

> 1. A method for operating a mobile satellite communication system having at least one gateway (GW), at least one user terminal (UT), and a constellation of satellites, comprising steps of:
>
> allowing access to said constellation of communication satellites by specifying an exclusion zone having a confidence limit (CL) associated therewith; and

> selectively providing service to a UT depending on a determined location of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location.

The Examiner relies on the following prior art in rejecting the claims:

Helm	US 6,157,834	Dec. 5, 2000
Ishikawa	US 6,166,687	Dec. 26, 2000
Maeda	US 6,352,222 B1	Mar. 5, 2002
Steer	US 6,643,517 B1	Nov. 4, 2003
Martti	US 6,718,169 B1	Apr. 6, 2004

Claims 1, 7, and 19-25 stand rejected as unpatentable under 35 U.S.C. § 103(a) over Steer in view of Helm and further in view of Martti.

Claims 2-6 and 8-12 stand rejected as unpatentable under 35 U.S.C. § 103(a) over Steer in view of Helm and Martti and further in view of Maeda.

Claims 13-18 stand rejected as unpatentable under 35 U.S.C. § 103(a) over Steer in view of Helm, Martti, and Maeda and further in view of Ishikawa.

We make reference to the Brief (filed Nov. 23, 2007) and the Answer (mailed Feb. 26, 2008) for their respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants did not make in the Brief have not been considered and are deemed waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUES

Claim 1 is the only independent claim at issue in this case. Appellants have presented no arguments for the patentability of dependent claims 7, 11, and 19-25, other than those presented for claim 1, from which they depend, so claims 7, 11, and 19-25 stand or fall with claim 1.

For each ground of rejection Appellants have argued that the combination of the cited art is an exercise of impermissible hindsight or a combination of unrelated art and have further argued that the combinations do not meet the claims.

The issues are:

1. Is claim 1 properly rejected as obvious under 35 U.S.C. § 103(a) over Steer in view of Helm and further in view of Martti?

2. Are claims 2-6, 8-10, and 12 properly rejected as obvious under 35 U.S.C. § 103(a) over Steer in view of Helm and Martti and further in view of Maeda?

3. Are claims 13-18 properly rejected as obvious under 35 U.S.C. § 103(a) over Steer in view of Helm, Martti, and Maeda and further in view of Ishikawa?

FINDINGS OF FACT (FF)

Steer

1. Steer discloses a mobile radio (e.g., cellular phone) system having a plurality of base stations interconnected through a mobile communications network in which mobile radio units communicate through the base stations with the mobile communications network (col. 4, ll. 46-51; Fig. 1).

2. Steer discloses determining mobile radio unit locations and defining a protected region within a service region of a radio communications network so that when a mobile radio unit is within the protected region its operation is constrained in order to avoid safety concerns due to interference (col. 1, ll. 12-15; col. 3, ll. 59-67) or to avoid nuisance

operation (col. 3, ll. 4-15, 64-67) and to insure that its operation is not constrained when it is outside the protected region (col. 3, ll. 32-60).

3. Steer discloses that one form of constraint of a mobile radio unit within a protected region is to turn off the mobile radio unit's transmitter (col. 3, ll. 23-25; col. 6, ll. 38-41).

4. Steer discloses that there may be inaccuracies in the location of the mobile radio unit and the definition of the protected region, and that one or more accuracy limits may be defined for each protected region and that location accuracy information and accuracy limits may be used in accommodating partial penetration of a protected region (col. 3, ll. 23-25; col. 9, ll. 23-35).

5. Steer discloses defining a protected region as a volume of space within geographic boundaries which may be defined by latitudes and longitudes (col. 5, ll. 3-16).

6. Steer discloses that mobile radio units may determine their locations at the mobile radio units, that they may do so by reference to information transmitted to them from the base stations, and that they do not broadcast their location information (col. 5, ll. 41-43; col. 8, ll. 44-60; col. 9, ll. 1-11).

7. Steer discloses that protected regions may move (col. 4, ll. 53-56; col. 10, ll. 25-32).

Helm

8. Helm discloses interoperable terrestrial and satellite cellular systems having a plurality of base stations, interface and regional GWs, and a satellite network, in which a subscriber unit communicates with a GW

through a base station or through one of the satellites (col. 2, ll. 20-34; Fig. 1).

Martti

9. Martti discloses a telecommunication network, such as a mobile telephone network, in which a CL threshold value is set for an indicator of fault in a network element, an indicator value is compared to the CL threshold value and system notifications are initiated based on the comparison (col. 1, ll. 60-67; col. 2, ll. 1-45).

Maeda

10. Maeda discloses a satellite communication system in which regions on the ground are defined by polygons specified in terms of latitudes and longitudes (Fig. 7; col. 10, ll. 32-39).

11. Maeda discloses that the region on the ground may be defined in part by an elevation (col. 10, ll. 34-39).

Ishikawa

12. Ishikawa discloses a satellite communication system in which mobile earth stations communicate with a terrestrial (land) earth station through a non-geostationary satellite (col. 5, ll. 26-50).

13. Ishikawa discloses a satellite communication system in which the location of a mobile earth station is determined in part by estimating Es in location information due to mobile earth station position instability, mobile earth station clock instability, and mobile earth station frequency oscillator instability (col. 6, ll. 11-21; col. 14, ll. 14-19).

14. Ishikawa discloses determining mobile earth station position information at the mobile earth station and transmitting that information to a land earth station through a satellite (col. 3, ll. 38-44).

PRINCIPLES OF LAW

> Section 103 forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007).

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. . . . [I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 417.

"The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents." *Id.* at 419.

> [T]he problem motivating the patentee may be only one of many addressed by the patent's subject matter. The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art. Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

Id. at 420.

"A person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id.* at 421.

"[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

ANALYSIS

1. Claims 1, 7, 11, and 19-25

Appellants argue for each of the rejected claims that the Examiner's proposed combination of references is improper because the references do not contain a teaching, suggestion, or motivation (TSM) to prompt the combination (*see, e.g.*, Br. 8). However, the use of TSM is not a rigid formula, *KSR*, 550 U.S. at 419. Based on the discussion below, the Examiner's articulated reasoning contains a sufficient rationale underpinning to support the combination and conclusion of obviousness. *See Kahn*, 441 F.3d at 988. Appellants argue that "the Steer patent has nothing to do with a mobile satellite communication system" (Br. 9) and that to "modify the Steer system [by the addition of Helm] . . . would cause interference in areas that would not normally cause interference" (Br. 8). Appellants further argue that Martti "discloses a confidence limit for a telecommunication network element that is completely non-analogous to the system of the instant invention" (Br. 10).

The Examiner responds that Steer contemplates that its invention is applicable to "all types of mobile radio devices capable of communicating with base stations in a mobile communications system" (Steer, col. 10, ll. 47-50) (Ans. 9). Further, Examiner points out (Ans. 10) that Steer states at column 9, lines 23-34:

> It is obvious that there will be some uncertainty involved in both the definition of the protected region and the measured location of the mobile. As part of the broadcast transmission defining the protected region, additional information may also be included to define the accuracy needed for establishing measurements and for comparison with the boundaries of the protected region. There may not be the same accuracy limits on all sides and in all directions. Many protected regions may be less sensitive to interference at their edges and, so, may be able to accommodate some penetration of the edges as long as the core region is protected.

Therefore, Steer teaches an uncertainty or estimated E associated with mobile unit location and definition of the protected region and an accuracy limit or CL associated with the protected region boundaries (FF 4). Martti teaches a CL for an indicator value and deviations of the indicator value that may be greater or less than the CL (FF 9). Appellants concede that Martti discloses a CL, but assert that "Steer does not address access control to the network based upon exclusion zone and a confidence limit, and does not selectively provide service to a radio depending on the determined location of the radio relative to the exclusion zone and on an estimated error (E) of the determined radio location" (Br. 10). Appellants make a similar argument later (Br. 12-13). In both cases, apart from merely asserting the absence of these elements, Appellants do not explain why the combination of Steer and Martti does not suggest comparing this estimated error to a CL. Therefore, we find the Examiner's explanation (Ans. 4, 10) that the combination suggests comparing CL and E to be reasonable because a deviation of an indicator value from a confidence limit reasonably corresponds to error estimation.

We also agree with the Examiner that the terrestrial and satellite mobile radio communication arts are very closely related (*see, e.g.*, Helm,

title ("Terrestrial and Satellite Cellular Network Interoperability")), the relevant difference being that in Steer the mobile radios or UTs communicate with the mobile communication network or GW through a base station (FF 1), and in Helm the subscriber unit or UT communicates with an interface or regional GW alternatively through a base station and mobile switching center or through a satellite network or constellation of satellites (FF 8). We also agree with the Examiner (Ans. 9) that it was well known to a person skilled in the mobile radio art at the time the invention was made that a mobile communications network, such as the network shown in Figure 1 of Steer, includes GWs to interconnect the mobile radio communication system to other communications networks such as a public switched telephone network or the internet. As such, a person of ordinary skill in either of these intimately related arts, faced with a problem to solve, would look to the other for solutions, *KSR*, 550 U.S. at 417. Additionally, as asserted by the Examiner (Ans. 9), Martti is in the same field of endeavor and a person having ordinary skill in the art would look to Martti for comparing E estimations (or similar deviations) to CLs for network elements (*see* FF 9) since Steele also teaches that network elements typically deviate from the norm. Accordingly, we agree with the Examiner that Steer, Helm, and Martti are properly combinable and that such combination is reasonable and does not represent impermissible hindsight reconstruction.

Appellants further argue that Steer's "protected region" does not relate to the "exclusion zone" of claim 1 (Br. 7). Nothing in the claim differentiates a region or zone where mobile radio unit usage must be inhibited because of RF interference from one where it must be inhibited because of safety, legal, or nuisance concerns. Indeed, Steer's safety

concerns are known to be the result of potential RF interference (FF 2). Further, Appellants argue that Steer's purpose is not to control access (Br. 9). However, Steer states that "[i]f no transmissions are allowed, the Protection Control Process may switch the Power Control Switch to disable the transmitter" (col. 6, ll. 38-41 (reference numbers omitted)). In other words, disabling the transmitter will "control access."

In combining the teaching of Steer and Helm, a person of ordinary skill would not combine them indiscriminately, but would exercise ordinary creativity and judgment, *KSR*, 550 U.S. at 421. Accordingly, we find that in combining Steer, Helms, and Martti, a person of ordinary skill would not do so in a way that causes the very problem he intends to avoid, but would instead apply the protected region teachings of Steer to Helm's entire network as needed. Still further, Appellants argue that Steer contemplates absolute confidence as to whether the mobile unit is within the protected region, but, as discussed *supra*, this argument is contradicted by Steer at column 9, lines 23-35 (FF 4). After consideration of Appellants' other arguments relative to claim 1, we find that Examiner correctly read the elements of the claim on the cited art.

Accordingly, we find that it would have been obvious to a person of ordinary skill in the mobile telecommunications art to apply Steer's teachings related to protected regions and mobile radio unit locations (FF 2) to Helm's satellite cellular system (FF 8). In doing so, the skilled artisan would take into account Steer's recognition of the inaccuracy inherent in determining mobile radio unit locations and establishment of accuracy limits for the protected region (FF 4) by comparing the estimated location inaccuracies to the accuracy limits, as taught by Martti (FF 9), to control

access to the system within the protected region (FF 3). Therefore, we conclude that claim 1 is properly rejected, as are claims 7, 11, and 19-25, which depend from claim 1 and are argued together therewith (Br. 13).

2. Claims 2-6, 8-10, and 12

Appellants argue that the Examiner exercised impermissible piecemeal hindsight reconstruction and improperly combined Maeda with the art applied to claim 1, as discussed *supra*, and that Maeda's polygons do not define exclusion zones (Br. 14-15). The Examiner responds that Maeda, in the same field of endeavor as Appellants' invention, teaches that a zone or area on the ground relevant to a satellite communication system can be defined as a polygon (Ans. 5) (Maeda, Fig. 7; col. 10, ll. 32-39). We agree with the Examiner that a person of ordinary skill in the art would look to Maeda for this teaching without being limited to whether the teaching related to service areas or exclusion zones.

As to claims 2 and 8, Steer teaches that a protected region on the ground defines protected volume of space (FF 5), and the Examiner has argued that a volume of space is inherently bounded by a side (Ans. 11-12). We agree with the Examiner and conclude that claims 2 and 8 are properly rejected.

With respect to claims 3-5, Appellants argue that nothing in the cited prior art teaches determining the location of the UT at the UT and transmitting the location to the GW (Br. 16). Examiner responds that Steer at column 4, lines 45-57, teaches determining the location of the UT at the UT and transmitting the location to the GW (Ans. 5).

As to claims 3 and 5, we are persuaded by Appellants. Steer teaches that the mobile radio does not broadcast its location information and that its

location is determined at the mobile based on information down linked to the mobile (FF 6). The Examiner has not identified, nor do we find, any contrary teaching in the passage cited *supra*. Accordingly, we conclude that the rejections of claim 3 and 5 based on the cited art are improper.

As to claim 4, we agree with the Examiner. Steer discloses that "[t]he base stations transmit the broadcast control messages including any other necessary information for determining the location of the mobile at regular intervals" (col. 5, ll. 41-43), which describes a cooperative role between the mobile stations and the base stations in determining location. Accordingly, we conclude that claim 4 is properly rejected.

With respect to claim 6, Appellants argue that nothing in the cited art teaches an exclusion zone that considers at least one of RF obstructions or terrain features (Br. 15). We note that Maeda's polygons, the applicability of which is discussed *supra*, are defined in part by an elevation (FF 11), which is a "terrain feature" within the scope of the claim. Accordingly, we concur with the Examiner and conclude that claim 6 is properly rejected.

Respecting claims 9 and 10, Appellants argue that the cited prior art does not include a volume or a surface defined, in part, by at least one point above the surface earth (Br. 15-17). Examiner responds:

> This region is a volume, the restricted area is not confined to the surface of the earth such that someone can walk into the region using the phone as long as it's not touching the surface of the earth. A volume has infinite surfaces and certainly one such surface could contain two points on the ground and one above the ground. Steer states in column 5, Lines 3-4 that: "The region to be protected is defined generally as a volume of space with geographic boundaries."

Ans. 11-12.

We agree with Appellants. A surface (or volume) containing a point is not the same as that surface or volume being defined by that point. We find that Appellants' use of "defined by a point" means that a limit of the surface or volume is established by the point. We find nothing in Steer or any of the other cited references that teaches a defining point above the ground. We therefore conclude that claims 9 and 10 are not properly rejected.

Regarding claim 12, Appellants argue that none of the cited references, and in particular Steer, teaches an exclusion zone that is dynamic and capable of at least one of movement or change in shape (Br. 18). The Examiner responds that as an airport, theater, library, or hospital expands and contracts, so would the exclusion zone (Ans. 12). Implicit in the Examiner's argument is the observation that the claim does not impose any limitation as to the time frame of change. We agree with the Examiner. We further note that Steer, at column 10, lines 25-27, envisions a moving protected area, such as an aircraft (FF 7). We conclude that claim 12 is properly rejected.

3. Claims 13-18

Appellants argue that that the combination of Ishikawa with Steer, Helm, Martti, and Maeda amounts to impermissible piecemeal hindsight reconstruction in the absence of a teaching in the cited references to prompt that combination (Br. 19). The Examiner responds that Ishikawa is in the same field of endeavor as Appellants' disclosure (*see* FF 12) and a person skilled in the art would turn to Ishikawa for its teaching of factors, such as local oscillator frequency variation, that lead to inaccuracy in UT location

determination. We agree with the Examiner and find that Ishikawa is properly combinable with the other cited prior art.

As to claims 13-16, Appellants argue that nothing in Ishikawa teaches or suggests that:

> the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in the UT as in claim 13; the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in the GW as in claim 14; the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in a home GW of the UT and is transferred from the home GW to a serving GW when the UT is roaming as in claim 15; the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in or is determined by the UT and is transferred to the GW as in claim 16.

(Br. 20).

The Examiner responds by pointing out several passages in Ishikawa that recite the use of mobile earth station frequency oscillator instability in estimating E in the determination of mobile earth station location (*see* Ishikawa, col. 6, ll. 11-23, 50-64) (Ans. 12-13). The Examiner further states:

> To make such an estimation the type of oscillator used in the mobile earth station would be stored in the mobile earth station and this would specify the accuracy of the local oscillator. Being that the satellite communication system does the location determination and many communication satellites are gateways the satellite must at least temporarily store the accuracy of the local oscillator. Again, if it is agreed that it[']s an obvious modification to Steer to provide an exclusion zone in a satellite communication system then there is good reason to combine

> Maeda with Steer, Helm et al. and Martii with Ishikawa et al. to determine the estimated position of the mobile earth station relative to its true position.

(Ans. 13).

We agree with the Examiner. Ishikawa discloses uploading mobile earth station data to the land earth station (FF 14) and both location E and oscillator instability E are inherently included in the location data (FF 13). It would have been an obvious matter of choice, well within the ability of one of ordinary skill in the art, to store the information at any of the locations specified in claims 13-16. Therefore, we conclude that the rejections of claims 13-16 are proper.

As to claim 17, Appellants argue that nothing in any of the cited references teaches, suggests, or implies that "the value of E is less than CL and where the GW sets the value of CL to be less than a possible minimum value of E for excluding all UTs from operating within the exclusion zone . . . " (Br. 20). Similarly, with respect to claim 18, Appellants argue that nothing in any of the cited references teaches, suggests, or implies that "the value of E is less than CL and where the GW sets the value of CL to be greater than a possible maximum value of E for enabling all UTs to operate within the exclusion zone . . . " (*id.*). We find no response in the Examiner's Answer or any portion of the cited art to contradict these statements. Therefore, we agree with Appellants that the rejection of claims 17 and 18 is improper.

CONCLUSIONS

On the record before us and in view of the analysis above, we conclude that the Examiner's rejections of claims 1, 2, 4, 6-8, 11-16, and 19-

25 are proper and the rejections of claims 3, 5, 9, 10, 17, and 18 are improper.

ORDER

The decision of the Examiner rejecting claims 1, 2, 4, 6-8, 11-16, and 19-25 is affirmed.

The decision of the Examiner rejecting claims 3, 5, 9, 10, 17, and 18 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART

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